

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
27 October 2005 (27.10.2005)

PCT

(10) International Publication Number  
**WO 2005/101505 A3**

(51) International Patent Classification<sup>7</sup>: **H01L 51/40**

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(21) International Application Number:  
PCT/GB2005/001416

(22) International Filing Date: 14 April 2005 (14.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0408569.2 16 April 2004 (16.04.2004) GB

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

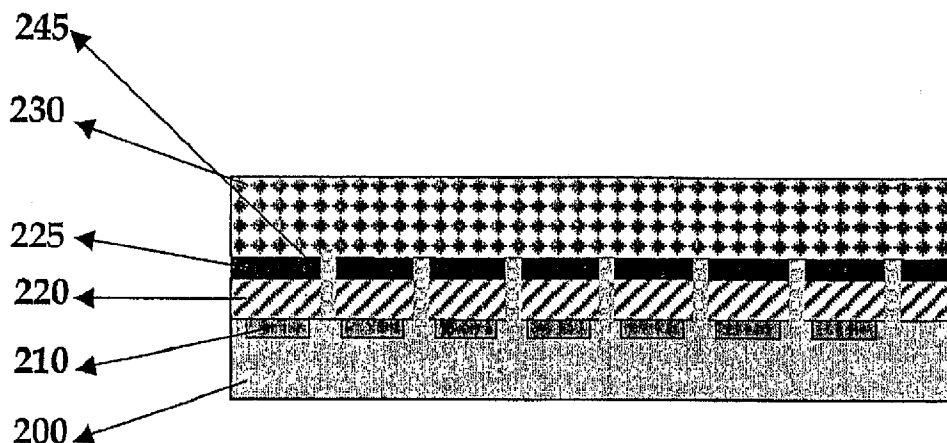
Published:

— with international search report

(88) Date of publication of the international search report:  
20 April 2006

[Continued on next page]

(54) Title: METHOD OF PATTERNING A FUNCTIONAL MATERIAL ON TO A SUBSTRATE



(57) Abstract: A method of patterning a functional material onto a substrate (200) comprises the steps of (a) applying a layer of functional material (225) to at least one major surface of said substrate; (b) applying a layer of protective material (230), soluble in a solvent in which the functional material (225) is insoluble, over said layer of functional material; (c) removing areas of said layers of protective (230) and functional (225) materials in well-defined regions on the substrate; and (d) removing the remaining exposed protective material (230) from the substrate (200) by dissolution in said solvent.

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**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H01L51/40

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/086024 A (DAI NIPPON PRINTING CO., LTD; ITOU, NORIHITO; TACHIKAWA, TOMOYUKI) 16 October 2003 (2003-10-16) the whole document	1,3, 5-16,18, 19,23-27
P,X	-& US 2004/224263 A1 (ITOU NORIHITO ET AL) 11 November 2004 (2004-11-11)	1,3, 5-16,18, 19,23-27
X	WO 98/53510 A (CAMBRIDGE DISPLAY TECHNOLOGY LTD; PICHLER, KARL; BRIGHT, CHRISTOPHER) 26 November 1998 (1998-11-26) the whole document	1,2, 8-15,19, 21-24,27
A	US 2002/145381 A1 (HUMBS WERNER) 10 October 2002 (2002-10-10) the whole document	
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Date of the actual completion of the international search

7 October 2005

Date of mailing of the international search report

14/10/2005

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB2005/001416

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/194882 A1 (DUBOWSKI JAN J ET AL) 16 October 2003 (2003-10-16)  the whole document	1,2, 8-14,21, 23,24,27
A	US 2003/214232 A1 (GUENTHER EWALD ET AL) 20 November 2003 (2003-11-20) the whole document	1-4

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2005/001416

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03086024	A	16-10-2003	CN 1496666 A EP 1569500 A1 US 2004224263 A1	12-05-2004 31-08-2005 11-11-2004
US 2004224263	A1	11-11-2004	CN 1496666 A EP 1569500 A1 WO 03086024 A1	12-05-2004 31-08-2005 16-10-2003
WO 9853510	A	26-11-1998	NONE	
US 2002145381	A1	10-10-2002	DE 10117663 A1 JP 2002324672 A KR 2002079342 A NL 1018081 A1	17-10-2002 08-11-2002 19-10-2002 10-10-2002
US 2003194882	A1	16-10-2003	NONE	
US 2003214232	A1	20-11-2003	US 2003209979 A1	13-11-2003